

## Exhibit 2

P011729US\_Sequence\_Listing  
SEQUENCE LISTING

<110> Hurst, Timothy Raymond  
<120> MUTANT FORMS OF EtxB AND CtxB AND THEIR USE AS CARRIERS  
<130> P011729US  
<140> US 10/743,391  
<141> 2003-12-22  
<150> GB 01153824  
<151> 2001-06-22  
<160> 16  
<170> PatentIn version 3.4  
<210> 1  
<211> 8  
<212> PRT  
<213> Escherichia coli

<220>  
<221> MUTAGEN  
<222> (1)..(8)  
<223> May be any amino acid.

<400> 1

Glu Val Pro Gly Ser Gln His Ile  
1 5

<210> 2  
<211> 8  
<212> PRT  
<213> Escherichia coli

<220>  
<221> MUTAGEN  
<222> (1)..(1)  
<223> May be any amino acid.

<220>  
<221> MUTAGEN  
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<223> May be any amino acid.

<220>  
<221> MUTAGEN  
<222> (7)..(7)  
<223> May be any amino acid.

<400> 2

Glu Val Pro Gly Ser Gln His Ile  
1 5

<210> 3  
<211> 8

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<212> PRT  
<213> Escherichia coli

<220>  
<221> MUTAGEN  
<222> (7)..(7)  
<223> Ala or Ser

<400> 3

Glu Val Pro Gly Ser Gln His Ile  
1 5

<210> 4  
<211> 8  
<212> PRT  
<213> Artificial

<220>  
<223> Synthetic peptide

<400> 4

Ser Ile Ile Asn Phe Glu Lys Leu  
1 5

<210> 5  
<211> 9  
<212> PRT  
<213> Artificial

<220>  
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<400> 5

Cys Ser Ile Ile Asn Phe Glu Lys Leu  
1 5

<210> 6  
<211> 16  
<212> PRT  
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<220>  
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<400> 6

Cys Glu Lys Leu Ala Gly Phe Gly Ser Ile Ile Asn Phe Glu Lys Leu  
1 5 10 15

<210> 7  
<211> 19  
<212> PRT  
<213> Artificial

<220>  
<223> Synthetic peptide

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<400> 7

Cys Ala Val Gly Ala Gly Ala Thr Ala Glu Glu Ser Ile Ile Asn Phe  
1 5 10 15

Glu Lys Leu

<210> 8

<211> 26

<212> PRT

<213> Artificial

<220>

<223> Synthetic peptide

<400> 8

Cys Glu Lys Leu Ala Gly Phe Gly Ala Val Gly Ala Gly Ala Thr Ala  
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Glu Glu Ser Ile Ile Asn Phe Glu Lys Leu  
20 25

<210> 9

<211> 26

<212> PRT

<213> Artificial

<220>

<223> Synthetic peptide

<400> 9

Cys Glu Lys Leu Ala Gly Phe Gly Ala Arg Gly Ala Gly Ala Thr Ala  
1 5 10 15

Glu Glu Ser Ile Ile Asn Phe Glu Lys Leu  
20 25

<210> 10

<211> 31

<212> PRT

<213> Artificial

<220>

<223> Synthetic peptide

<400> 10

Cys Glu Lys Leu Ala Gly Phe Gly Ala Val Gly Ala Gly Ala Thr Ala  
1 5 10 15

Glu Glu Ser Ile Ile Asn Phe Glu Lys Leu Thr Glu Trp Thr Ser  
20 25 30

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<210> 11  
 <211> 14  
 <212> PRT  
 <213> herpes simplex virus 1

<400> 11

Ala Gly Phe Gly Ala Val Gly Ala Gly Ala Thr Ala Glu Glu  
 1 5 10

<210> 12  
 <211> 103  
 <212> PRT  
 <213> Vibrio cholerae

<400> 12

Thr Pro Gln Asn Ile Thr Asp Leu Cys Ala Glu Tyr His Asn Thr Gln  
 1 5 10 15

Ile His Thr Leu Asn Asp Lys Ile Phe Ser Tyr Thr Glu Ser Leu Ala  
 20 25 30

Gly Lys Arg Glu Met Ala Ile Ile Thr Phe Lys Asn Gly Ala Thr Phe  
 35 40 45

Gln Val Glu Val Pro Gly Ser Gln His Ile Asp Ser Gln Lys Lys Ala  
 50 55 60

Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Ala Tyr Leu Thr Glu Ala  
 65 70 75 80

Lys Val Glu Lys Leu Cys Val Trp Asn Asn Lys Thr Pro His Ala Ile  
 85 90 95

Ala Ala Ile Ser Met Ala Asn  
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<210> 13  
 <211> 103  
 <212> PRT  
 <213> Vibrio cholerae

<400> 13

Thr Pro Gln Asn Ile Thr Asp Leu Cys Ala Glu Tyr His Asn Thr Gln  
 1 5 10 15

Ile His Thr Leu Asn Asp Lys Ile Phe Ser Tyr Thr Glu Ser Leu Ala  
 20 25 30

Gly Lys Arg Glu Met Ala Ile Ile Thr Phe Lys Asn Gly Ala Thr Phe  
 35 40 45

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Gln Val Glu Val Pro Gly Ser Gln Ala Ile Asp Ser Gln Lys Lys Ala  
50 55 60

Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Ala Tyr Leu Thr Glu Ala  
65 70 75 80

Lys Val Glu Lys Leu Cys Val Trp Asn Asn Lys Thr Pro His Ala Ile  
85 90 95

Ala Ala Ile Ser Met Ala Asn  
100

<210> 14  
<211> 103  
<212> PRT  
<213> Escherichia coli

<220>  
<221> misc\_feature  
<222> (21)..(21)  
<223> Xaa can be any naturally occurring amino acid  
  
<400> 14

Ala Pro Gln Thr Ile Thr Glu Leu Cys Ser Glu Tyr Arg Asn Thr Gln  
1 5 10 15

Ile Tyr Thr Ile Xaa Asp Lys Ile Leu Ser Tyr Thr Glu Ser Met Ala  
20 25 30

Asp Lys Arg Glu Met Val Ile Ile Thr Phe Lys Ser Gly Glu Thr Phe  
35 40 45

Gln Val Glu Val Pro Gly Ser Gln His Ile Asp Ser Gln Lys Lys Ala  
50 55 60

Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Thr Tyr Leu Thr Glu Thr  
65 70 75 80

Lys Ile Asp Lys Leu Cys Val Trp Asn Asn Lys Thr Pro Ile Ser Ile  
85 90 95

Ala Ala Ile Ser Met Glu Asn  
100

<210> 15  
<211> 103  
<212> PRT  
<213> Escherichia coli

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<220>
<221> misc_feature
<222> (21)..(21)
<223> Xaa can be any naturally occurring amino acid

<400> 15

Ala Pro Gln Thr Ile Thr Glu Leu Cys Ser Glu Tyr Arg Asn Thr Gln
1          5          10          15

Ile Tyr Thr Ile Xaa Asp Lys Ile Leu Ser Tyr Thr Glu Ser Met Ala
          20          25          30

Gly Lys Arg Glu Met Val Ile Ile Thr Phe Lys Ser Gly Glu Thr Phe
          35          40          45

Gln Val Glu Val Pro Gly Ser Gln His Ile Asp Ser Gln Lys Lys Ala
          50          55          60

Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Thr Tyr Leu Thr Glu Thr
65          70          75          80

Lys Ile Asp Lys Leu Cys Val Trp Asn Asn Lys Thr Pro Ile Ser Ile
          85          90          95

Ala Ala Ile Ser Met Glu Asn
          100

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<210> 16
<211> 103
<212> PRT
<213> Escherichia coli

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<220>
<221> misc_feature
<222> (21)..(21)
<223> Xaa can be any naturally occurring amino acid

<400> 16

Ala Pro Gln Thr Ile Thr Glu Leu Cys Ser Glu Tyr Arg Asn Thr Gln
1          5          10          15

Ile Tyr Thr Ile Xaa Asp Lys Ile Leu Ser Tyr Thr Glu Ser Met Ala
          20          25          30

Gly Lys Arg Glu Met Val Ile Ile Thr Phe Lys Ser Gly Glu Thr Phe
          35          40          45

Gln Val Glu Val Pro Gly Ser Gln Ala Ile Asp Ser Gln Lys Lys Ala
          50          55          60

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# P011729US\_Sequence\_Listing

Ile Glu Arg Met Lys Asp Thr Leu Arg Ile Thr Tyr Leu Thr Glu Thr  
65 70 75 80

Lys Ile Asp Lys Leu Cys Val Trp Asn Asn Lys Thr Pro Ile Ser Ile  
85 90 95

Ala Ala Ile Ser Met Glu Asn  
100